

National Marine Sanctuaries
National Oceanic and Atmospheric Administration



NATIONAL MARINE
SANCTUARIES

OLYMPIC COAST



OCNMS Shoreline Debris Monitoring

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Citizen Science Coordinator



MD-MAP Pilot Project

- ▷ Japan tsunami debris (2011)
- ▷ Measureable increase in debris?
 - ▷ *Baseline & shift in abundance or composition*
- ▷ Spatial and temporal variation
 - ▷ *Modeling*
 - ▷ *Power analysis*



North Coast Journal



OPRD

Marine Debris

MD-MAP Partners

~ 40 partners @
~ 150 sites

*Monthly or
Snapshot*

*Standing stock
and accumulation*

Volunteer-
based

*Training &
Communication*



Marine Debris



7 monitoring sites
Strait of Juan de Fuca



13 monitoring sites
Washington outer coast



Site Selection

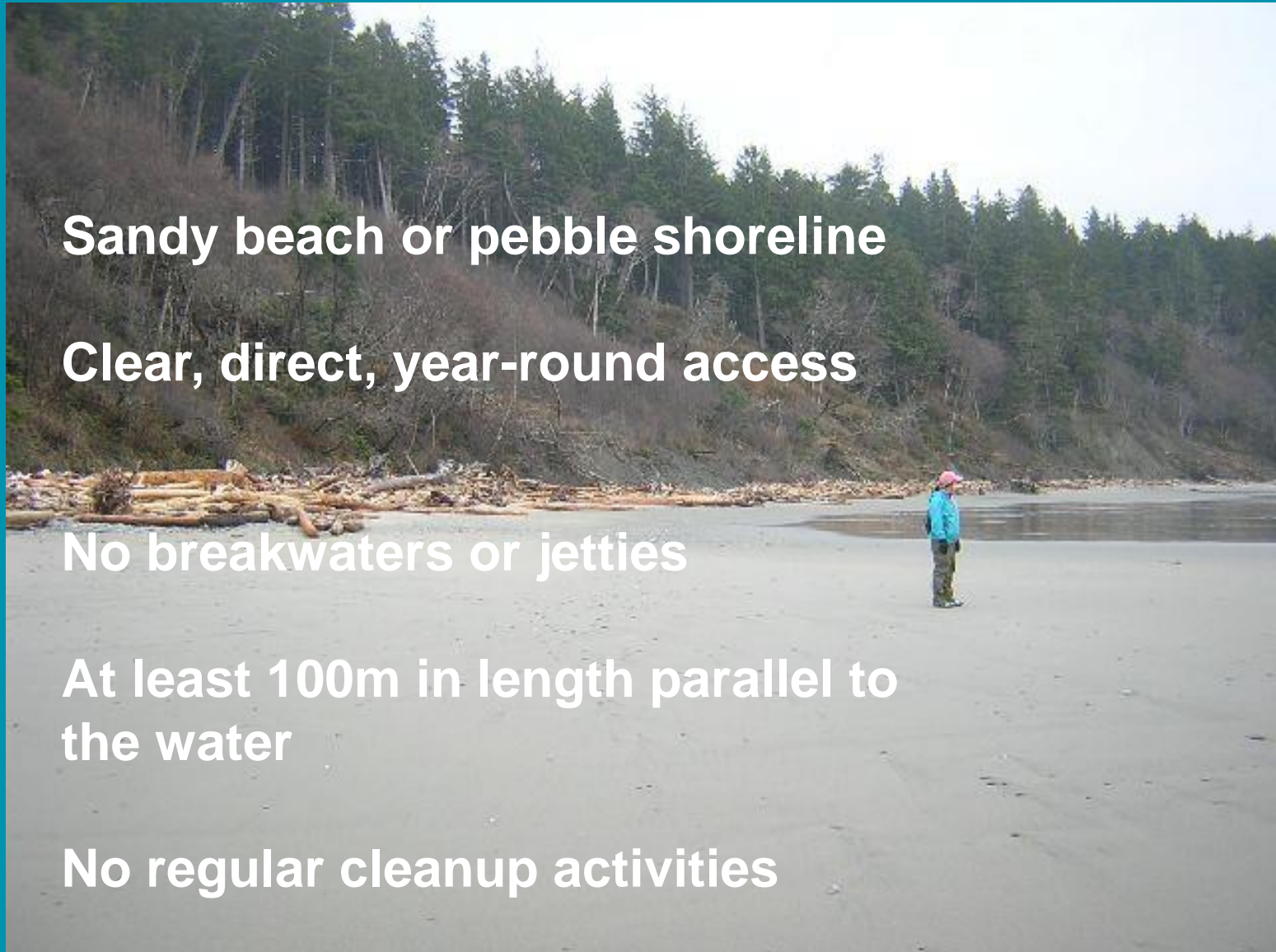
Sandy beach or pebble shoreline

Clear, direct, year-round access

No breakwaters or jetties

At least 100m in length parallel to the water

No regular cleanup activities



Material Types:

- Plastic
- Metal
- Glass
- Rubber
- Processed lumber
- Cloth/fabric
- Other



Notes: Evidence of cleanup, sampling issues, etc.

DEBRIS DATA: (CONTINUE)

ITEM
Plastic fragments
Food wrappers
Beverage bottles
Other jugs or containers
Bottle or container caps
Cigar tips
Cigarettes
Disposable cigarette
6-pack rings
Bags
Plastic rope/small net
Buoys & floats
Fishing lures & line
Cups (including polystyrene/foamed)
Plastic utensils
Straws
Balloons
Personal care products
Other:

Aluminum/tin cans
Aerosol cans
Metal fragments
Other:
Beverage bottles
Jars
Glass fragments
Other:

ITEM	TALLY (e.g., #/m)	TOTAL		
RUBBER				
Flip-flops				
Gloves				
Tires				
Rubber fragments				
Other:				
PROCESSED LUMBER				
Cardboard cartons				
Paper and cardboard				
Paper bags				
Lumber/building material				
Other:				
CLOTH/FABRIC				
Clothing & shoes				
Gloves (non-rubber)				
Towels/rags				
Rope/net pieces (non-nylon)				
Fabric pieces				
Other:				
OTHER/UNCLASSIFIABLE				
LARGE DEBRIS ITEMS (> 1 foot or ~ 0.3 m)				
Item type (vessel, net, etc.)	Status (sunken, stranded, buried)	Approximate width (m)	Approximate length (m)	Description / photo ID #
Notes on debris items, description of "Other/unclassifiable" items, etc:				

OCNMS Specific Items



Firework pieces



Non-English lettering



Short yellow ropes



Packing straps



Bait containers/lids/mesh



Rubber straps



Hagfish trap funnel



Gunshot wads, shells





Norwegian Memorial
Mike Tetreau, Chiggers Stokes



August 26, 2012



October 26, 2012



October 27, 2013



December 23, 2012



August 10, 2013



December 28, 2013

Norwegian Memorial



Taylor Point South
Liam Antrim and Volunteers



June 18, 2013



July 16, 2013



August 20, 2013

Taylor Point South



September 17, 2013



October 17, 2013



November 23, 2013

NOAA Shoreline Monitoring Protocol

Protocols designed to assess:

- Variability in the **abundance** of debris at local and regional levels
- The types and **density** (# of items / area) of debris present by material category
- Temporal **trends** (seasonal + interannual)
- Potential drivers / **sources** of debris

Is Japan Tsunami debris washing up on U.S. shores?





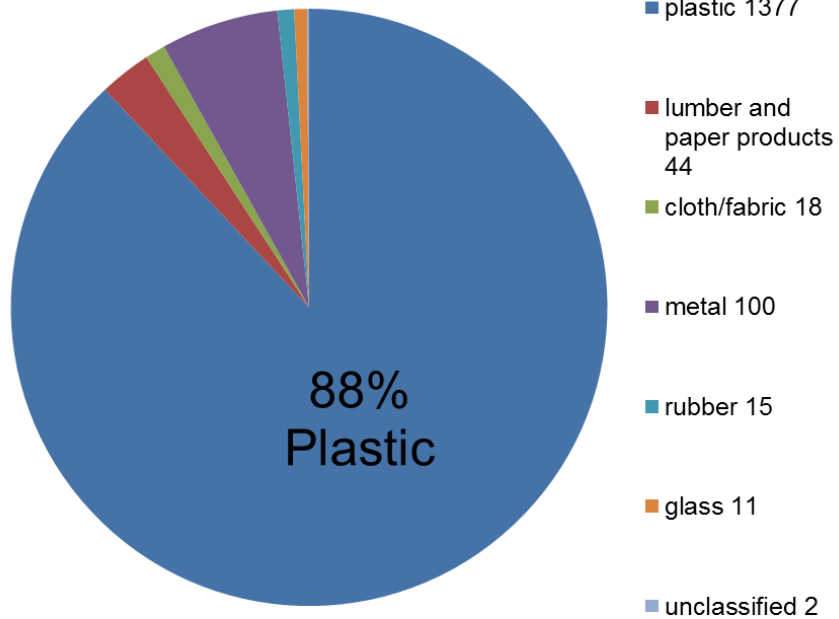
Hobuck 5/10/14 #2 (Nona)



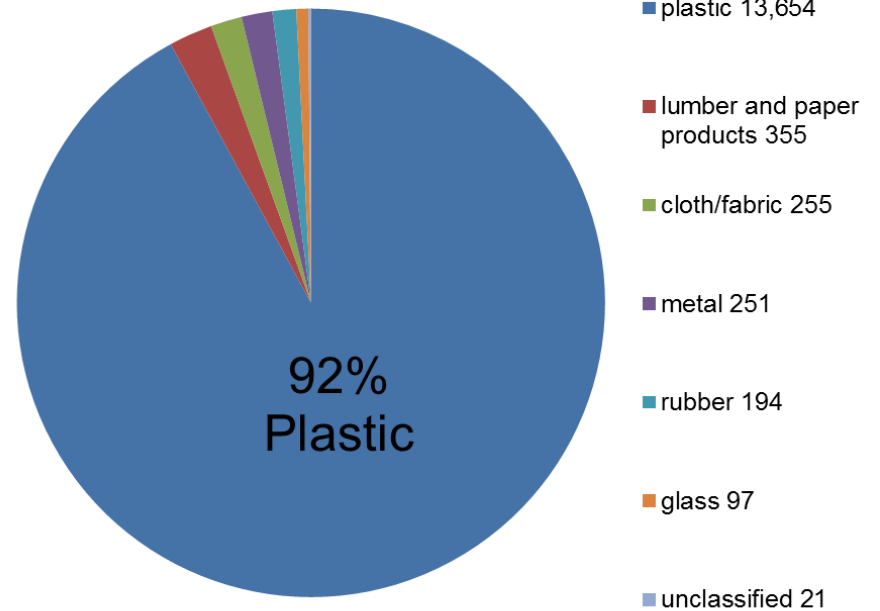
Hobuck 12/21/12
Peck
Foam Float Mark



Strait of Juan de Fuca
7 sites
102 surveys 1,567 pieces
15 items/survey

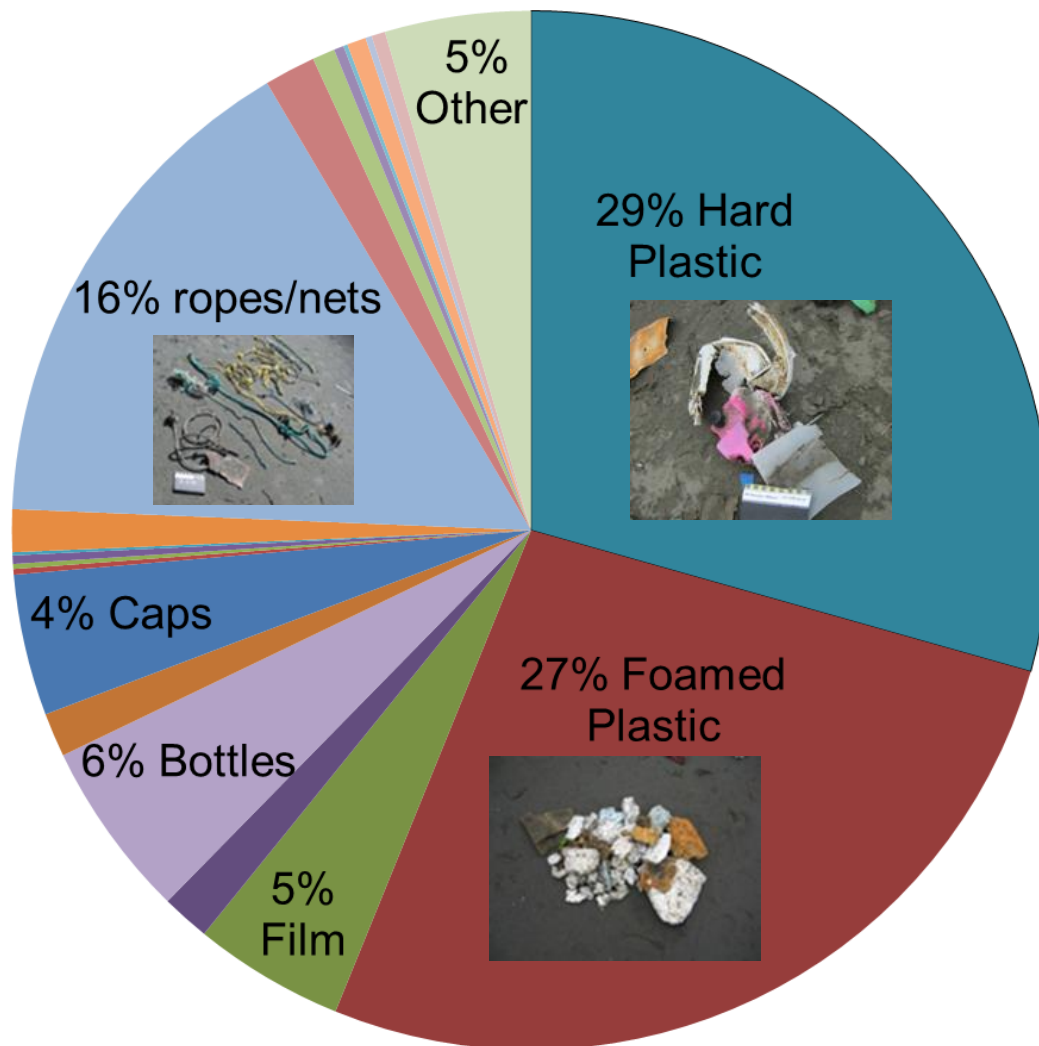


Washington Coast
17 sites
223 surveys 14,827 pieces
67 items/survey



Plastic Categories

9,138 items



- Hard Plastic
- Foamed Plastic
- Filmed Plastic
- Food Wrappers
- Beverage Bottles
- Other Jugs/Containers
- Bottle/Container Caps
- Cigar Tips
- Cigarette filters
- Disposable Cigarette Lighters
- 6-Pack Rings
- Bags
- Plastic Rope/Net
- Buoys & Floats
- Fishing Lures & Line
- Cups
- Plastic Utensils
- Straws
- Balloons
- Personal Care Products
- Other

Foamed Plastic



December 2012



December 2012

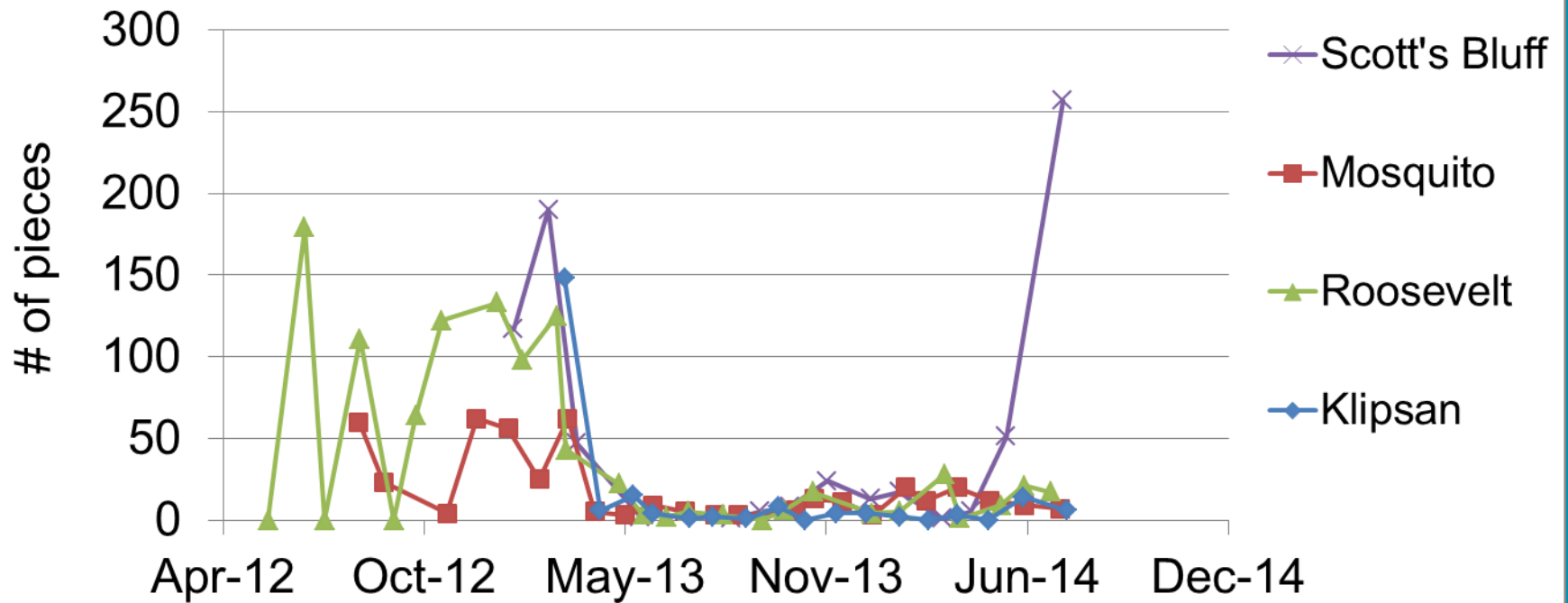


December 2012



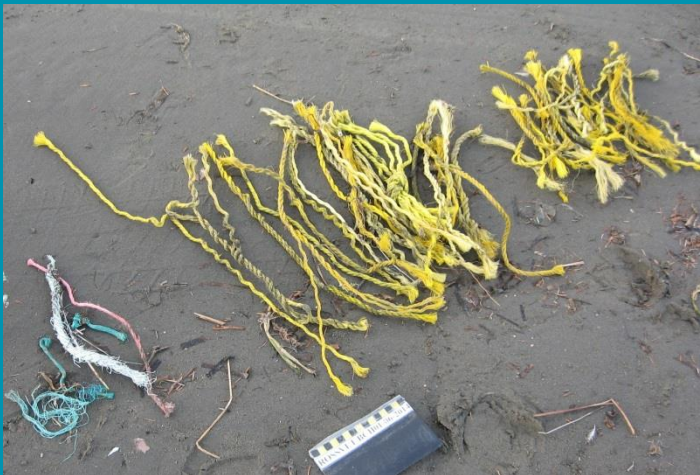
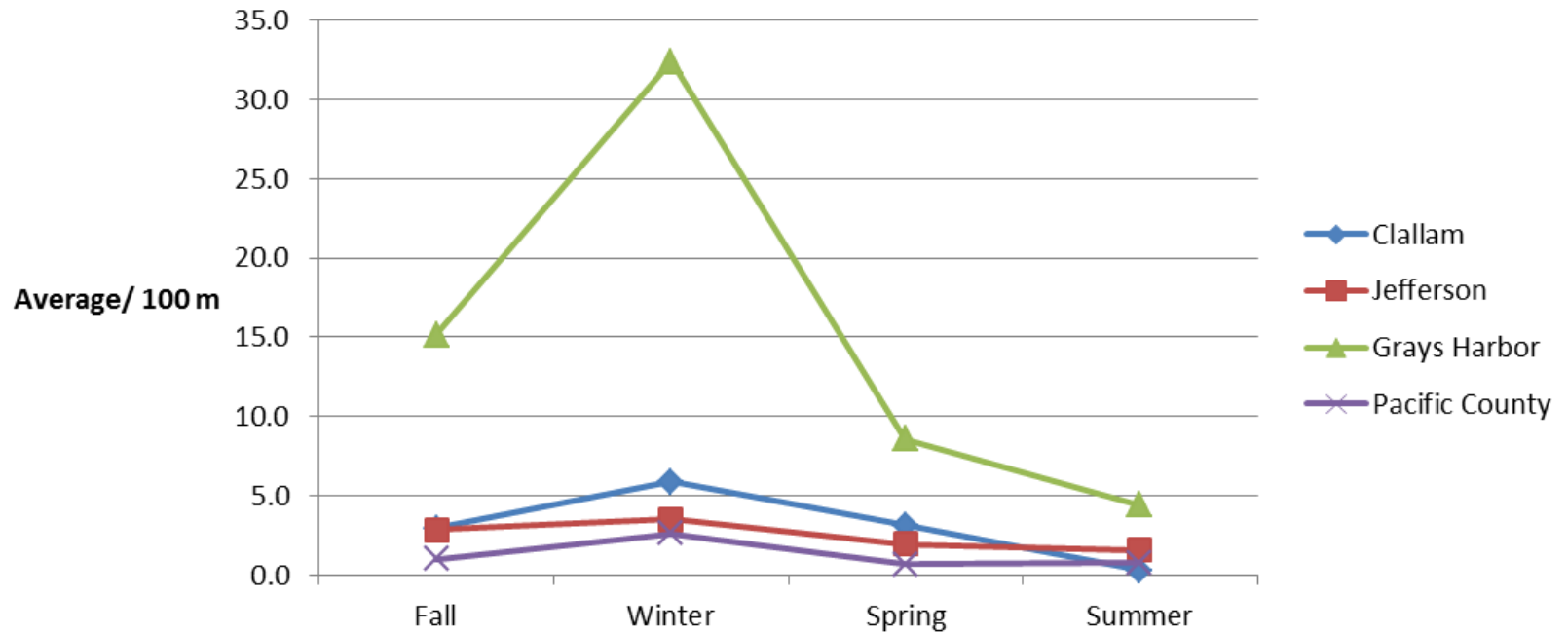
August 2012

Foamed Plastic





Yellow Rope Pieces



Strait of Juan de Fuca

NOAA Shoreline Debris Monitoring Sites

Hoko River West
Pillar Point
Deep Creek
Tongue Point
Elwha E/W
Dungeness Spit
Thompson Spit

Nancy Messmer and Roy Morris

Cammy Thomas

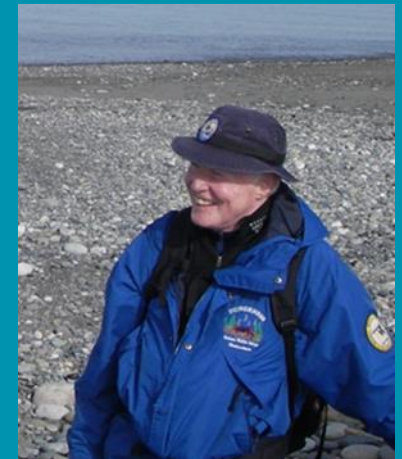
Rick Johns

Carol Volk and Gary Korb

North Olympic Skills Center

Rod Norvell

Hank and Raedell Warren, Rad Martinez



Washington Outer Coast NOAA Shoreline Debris Monitoring Sites

Wa-atch	<i>Sally and Paul Parker</i>
Hobuck	<i>Sally/Nancy/Heidi</i>
Tsoo-Yess	<i>Sally and Paul Parker</i>
Duk Point	<i>Dave Easton</i>
Sand Point North	<i>Barbara Maxwell</i>
Norwegian	<i>Mike Tetreau</i>
Taylor Point/ SBN	<i>Liam Antrim and volunteers</i>
Mosquito Creek	<i>Chiggers Stokes</i>
Abbey Island	<i>Nadine Fuller</i>
Ruby Beach	<i>Janis and Jody Schroeder</i>
South Beach	<i>Nadine Fuller</i>
Roosevelt	<i>Jane Marks/Marilyn Jones</i>
Klipsan	<i>Russ Lewis and friends</i>



NOAA Shoreline Debris Data Tally and Entry Volunteers



Jaci Pumphrey
Volunteer
Extraordinaire



Karsten Turrey
North Olympic Skills Center



Jaedyn Joers
Peninsula College

Questions?



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National Oceanic and Atmospheric Administration



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OLYMPIC COAST

<http://olympiccoast.noaa.gov>